

*Dust & Water-Proof Precision Balances*

# *FZ-iWP* *FX-iWP*

*Series*



*FZ-iWP*



*FX-iWP*



**AND** ...Clearly a Better Value  
A&D Company, Limited  
<http://www.aandd.jp>

# *The World's First IP65 Compliant, Dust & Water-Proof Precision (1 mg) Balances*

*Yet another breakthrough from A&D enabling the measurement of powder or liquid at 1 mg resolution, eliminating any worries about damage to the balance!*

## *What does “IP65” mean?*

An International Protection (IP) Code, as defined by the international standard IEC 60529, specifies the degrees of protection provided by enclosures. The two digits next to IP indicate the levels of protection against solid foreign objects (first digit) and water (second digit). For example, a device rated as IP65 should permit no ingress of dust (level 6) and withstand water jetting from any direction (level 5).



## *Newly Developed, Air-Pump Controlled Internal Calibration<sup>i</sup>* *(FZ-iWP models only) \*<sup>i</sup> Patent Pending*

For the internal calibration of the FZ-iWP Series, A&D adopted a direct-driving method that utilizes air pressure for its power source. This new method features a simple structure, high reliability and a fail-safe mechanism – the internal mass returns to the original position even if the calibration is interrupted by power failure, etc.

### *One Touch Automatic Calibration (FZ-iWP models only)*

With just one press of a key, you can ensure the accuracy of your balance.



(FZ-iWP)

(FX-iWP)



## Compact, B5 Size Footprint

A&D's latest, Compact Super Hybrid Sensor (C-SHS) technology<sup>ii</sup> has significantly reduced the size of the FZ-iWP/FX-iWP Series – a 25% smaller footprint than the GX/GF Series – making it ideal for installation and use in narrow spaces. \*<sup>ii</sup> Patent Pending

## Fast, 1 Second Stabilization

While maintaining extremely high span stability, the C-SHS also realizes an ultra-fast response speed – just 1 second – to maximize your productivity and efficiency.

### RS-232C Interface (standard)

Bi-directional communication is possible with a PC, printer or other peripheral device.



Dust & Water-Proof RS-232C Cable (optional)

### Quick USB Interface (FXi-02)

The easy-to-use optional USB interface requires no driver or software installation for transfer of weighing data to a PC.<sup>iii</sup>

### LAN-Ethernet Interface (FXi-08) with WinCT-Plus Software

The user can send commands for controlling and acquiring data from multiple balances.



\*<sup>iii</sup> Unidirectional communication from a balance to a PC only. Please use the standard RS-232C interface to send commands from a PC to the balance.

### Shock Absorber Function<sup>iv</sup>

The internal shock absorber protects the C-SHS from the adverse effects of vertical and transverse overloading. \*<sup>iv</sup> Patent Pending

### Multiple Weighing Units

Programmable or standard weighing units of measurement can be selected: g, pcs, %, oz, lb, L oz, ozt, ct, mom, dwt, GN, tl, tol, mes, and MLT.

### Statistical Calculation Function

The balance displays and/or outputs statistical calculation data as No. (number of data), SUM (total), MAX (maximum), MIN (minimum), R [range (maximum – minimum)], AVE (average), SD (standard deviation) and CV (coefficient of variation).

### Built-in Rechargeable Battery (FXi-09)

An optional Ni-MH rechargeable battery pack can be fitted into the balance for use without AC power and for mobile applications (10 hours charging time for 8 hours operation).

### Large Breeze Break (FXi-WP-11)

Note:  
All FZ-iWP models, the FX-120iWP, the FX-200iWP and the FX-300iWP come with a small breeze break as standard.



## Specifications

Specifications		FZ-120iWP FX-120iWP	FZ-200iWP FX-200iWP	FZ-300iWP FX-300iWP	FZ-1200iWP FX-1200iWP	FZ-2000iWP FX-2000iWP	FZ-3000iWP FX-3000iWP
Weighing capacity		122g	220g	320g	1220g	2200g	3200g
Minimum weighing value		0.001g			0.01g		
Counting mode	Minimum unit mass	0.001g			0.01g		
	Number of samples	5, 10, 25, 50 or 100 pieces					
Percent mode	Minimum 100% reference mass	0.100g			1.00g		
	Minimum 100% display	0.01%, 0.1%, 1% (depends on the reference mass stored)					
Repeatability (Standard Deviation)		0.001g			0.01g		
Linearity		±0.002g			±0.02g		
Stabilization time (typically set at FAST)		Approx. 1 second					
Sensitivity drift (10°C to 30°C)		±2ppm / °C					
Operating temperature		5°C to 40°C (41°F to 104°F), 85%RH or less (no condensation)					
Display type		Vacuum Fluorescent Display (VFD)					
Display refresh rate		5 times /second, 10 times /second or 20 times /second					
Standard interface		RS-232C Interface					
Weighing pan (diameter)		130mm			150mm		
Internal calibration		Air-pump Controlled Internal Calibration (FZ-iWP models only)					
External calibration mass		100g 50g	200g 100g	300g 200g 100g	1000g 500g	2000g 1000g	3000g 2000g 1000g
AC adaptor		Confirm that the adaptor type is correct for the local voltage and power receptacle					
Power consumption		Approx. 11VA (supplied to the AC adaptor)					
External dimensions		193 (W) X 262.5 (D) X 85.5 (H) mm					
Net weight		FZ-iWP Approx. 3.2kg / FX-iWP Approx. 2.7kg					

## Options

- FXi-02\*** Quick USB interface with cable
- FXi-08\*** Ethernet interface with WinCT-Plus software
- FXi-09\*** Built-in rechargeable battery
- FXi-WP-10** Small breeze break (gray)
- FXi-WP-11** Large breeze break (gray)
- FXi-12** Animal weighing pan
- FXi-15** Carrying case

\* FXi-02, FXi-08 and FXi-09 cannot be used at the same time  
(Not IP65 compliant when used with FZ,FX-iWP)

## Accessories

- AD-1683** Static eliminator
- AD-1684** Electrostatic fieldmeter
- AD-1688\*** Weighing data logger
- AD-1689** Tweezers for calibration weight
- AD-8920A\*** Remote display
- AD-8922\*** Remote controller
- AD-8121B\*** Compact printer
- AD-8118C\*** Universal printer
- AD-8526\*** Serial/Ethernet converter
- AD-8527\*** Quick USB adapter
- AX-USB-9P\*** Serial/USB converter
- AX-KO2737-500-EX** Waterproof RS-232C cable (5m)
- AX-CARATPAN-W** Carat pan (silver, 2pcs)
- AX-CARATPAN-B** Carat pan (black, 2pcs)
- AX-FXi-31** Main unit cover (5pcs)

\* (Not IP65 compliant when used with FZ,FX-iWP)



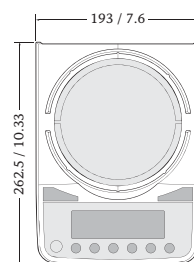
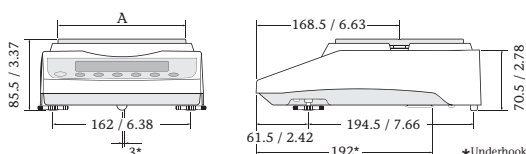
FXi-12

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## External Dimensions (mm/inches)

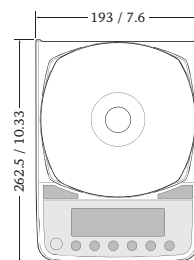
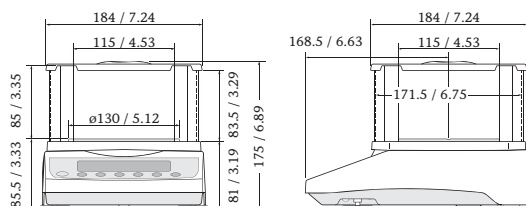
Pan size

Model	A
FZ,FX-120iWP / 200iWP / 300iWP	130 / 5.12
FZ,FX-1200iWP / 2000iWP / 3000iWP	150 / 5.91

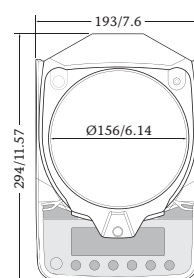
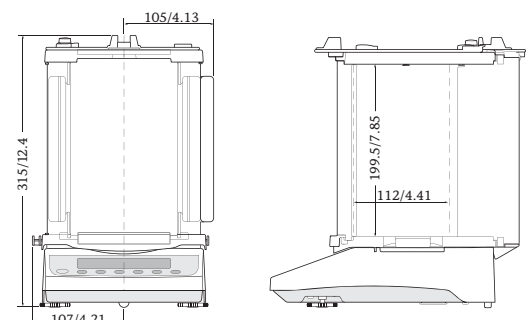


## Dimensions with Small Breeze Break (FXi-WP-10)

(Comes equipped with FZ,FX-120iWP/200iWP/300iWP, FZ-1200iWP/2000iWP/3000iWP)



## Dimensions with Large Breeze Break (FXi-WP-11)



# GX GF *Series*

GX-400  
with optional glass breeze break

GX-600  
with standard breeze break



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# The World's

*Our revolutionary Super Hybrid Sensor (SHS) technology improves response speed, accuracy and minimizes maintenance costs. SHS combines the best of magnetic force restoration and single point parallelogram load sensing technologies. Its unique design provides the fastest response speed in its class – just 1 second! And if the time ever comes when the SHS needs repair, you just replace one of three parts – there is no need to replace the whole sensor! This translates to Minimum Maintenance Costs. (An additional benefit of our new SHS is that the GX automatically performs self calibration using the internal mass when the balance detects ambient temperature changes.)*



**Super Hybrid  
Sensor**  
(Patent Pending)



**Motor-driven  
Internal Calibration**

## Internal Calibration



The GX internal calibration with an internal mass saves time and money. External calibration requires a great deal of skill, time and an expensive external mass. With our internal calibration with internal mass, the balance is calibrated very quickly.

- Automatic Self Calibration — Self-calibrates automatically when the balance detects ambient temperature changes.
- One Touch Automatic Calibration — Allows you to calibrate the balance on demand with just the push of a button.
- Calibration is essential for accuracy in weighing. For example, in high resolution balances, changes in sensitivity drift can be caused by changes in the ambient temperature. Take the GX 600 for example, the weight might change by  $\pm 0.010\text{g}$  with a change of  $10^{\circ}\text{C}$ . (Sample's weight: 500g)
- The GX's internal calibration mass is adjusted to an "OIML F1 class level." by the standard balance calibrated with an "OIML E2 class level mass". (The GX's internal calibration mass is not "the standard mass for legal metrology" nor "OIML's level of calibration mass." Instead it is the mass for adjustment.)

## Just 1 Second — Ultra Fast Response Speed

- Ultra Fast Response Speed—Just 1 Second.\* Ideal for installation with filling machines. \* "FAST" setting
- Ultra High Performance with minimum maintenance costs.

## Standard RS-232C



Incorporates bi-directional communication with a PC, printer or other peripheral device.

## Standard Windows Communication Tools Software WinCT



A free copy of WinCT-A&D's powerful and flexible data collection software tool for virtually instant connection to a PC and a network of other devices.



# Most User-Friendly

GX



GF



SHS  
Super Hybrid Sensor

Internal Calibration  
CAL

888  
VFD Display

FDC  
Full Digital Calibration

RS-232C  
STANDARD

WinCT

COMPARATOR

GLP

AAAI  
Automatic Counting  
Accuracy Improvement

OFF

ANIMAL

# y Balances...

888  
VFD Display



Bright, bold, blue vacuum fluorescent display (VFD) that is virtually unmistakable from any viewing angle.

ANIMAL



**Animal Weighing Mode** allows you to quickly and accurately determine the weight of any live or unstable subject. Optional animal weighing pan (GX-12) is available.



**Automatic Adjustable Environment Setting** Adapts to the most suitable Environment Response Setting automatically with one-touch key operation. The response annunciator displays "FAST", "MID" and "SLOW." (GX)

**Manual Response Adjustment** can be set by pressing the MODE key and response speed can be adjusted to FAST, MID or SLOW.

COMPARATOR



**Standard Comparator Function** offers increased flexibility and compatibility for a vast number of applications. You can input a target weight and weigh heavier or lighter items using either the keyboard or by placing samples on the pan. Hi, OK or Lo will be indicated on the display to show the comparison results. (GX-04 Comparator output)

ACAI



**Automatic Counting Accuracy Improvement (ACAI)** is a novel and useful approach to ensuring the utmost in performance when counting even the smallest of items. ACAI automatically updates and refines the average piece weight used to determine the total quantity.



**Percentage Function** facilitates an effective and quick comparison of a sample or commodity against a known reference mass. Simply place an object on the pan to register its weight as 100%. Place another object on the pan to compare its weight in percentage mode.



**Overall Capacity Indication** is a unique and helpful feature. By indicating how much of the balance's capacity has been filled, the risk of overloading the balance is minimized.

## Main Features

## GXseries

## GFseries

SHS (Super Hybrid Sensor)	✓	✓
Internal Calibration	✓	—
VFD Display	✓	✓
WinCT	✓	✓
Data Memory Function	✓	✓
Automatic Adjustable Environment Setting	✓	(Manual)
Auto Self Checking	✓	✓
Density Determination Function	✓	✓
Quick Reference Card	✓	✓
Underhook	✓	✓
Time & Date Function	✓	—
Large Square Weighing Pan	✓	✓
Comparator Function	✓	✓
Animal Weighing	✓	✓
Capacity Indicator	✓	✓
ACAI Counting Function	✓	✓
Percentage Function	✓	✓
Front Air Bubble Leveling	✓	✓
Standard RS-232C	✓	✓
GLP, GMP, GCP, ISO Compliance Data Output	✓	✓
Splash Proof Keyboard and Display	✓	✓
Display Auto Power Off Function	✓	✓
Aluminum Die-Cast Case	✓	✓



## Splash Proof Keyboard and Display

Balances protected from dust and spills

## GLP GLP/GMP/GCP/ISO Compliance

Allows GLP or LIMS balance management by outputting the Balance ID number and data used to calibrate the balance. The data can be output to A&D's AD-8121B printer or a computer, indicating date, time, Balance ID number, serial number and calibration data.



MODEL: GX-2000  
S/N: 01234567  
ID: ABCDEF0  
DATE: 2003-01-01  
TIME: 12:34:56  
CALIBRATED<INT.>  
SIGNATURE:



## Standard RS-232C

Bi-directional communication with a PC or connects directly to a printer

## Commands

A PC can control the balance by sending commands to the balance.

- Commands to query weighing data
- Commands to control the balance
- Commands to control the memory function
- Commands to control the comparator function

## ID Number

The balance ID number can be set. It is used to identify the balance when GLP is used. The ID number is memorized and maintained once it is fixed, even if the AC adapter is removed.



## Display Auto Power Off Function

Display turns off after 10 minutes of inactivity  
(can be disabled when undesired)

## Data Memory Function

(Patent Pending)

Format the Data Memory Function for:

- GX • 200 sets of weighing data
  - 100 sets of weighing data with Time & Date
  - 50 sets of GLP Data–Time & Date, Calibration Data, ID number and Serial number
  - 20 sets of Unit Weight for Counting Mode
- GF • 40 sets of weighing data
  - 20 sets of Unit Weight for Counting Mode

## Time & Date (GX only)

Standard Time & Date Function complies with GLP and Interval Weighing in the Data Memory Function

## Auto Self Checking

Automatically checks itself when setting the Automatic Adjustable Environment

## Standard Underhook

Ideal for density determination and weighing magnetic substances.

## Density Measurement Function

Picture shown with GX-13 Density Measurement Kit



## Interval Time Setting

Weighing intervals of 2, 5, 10, 30 seconds and 1, 2, 5, 10 minutes in the Data Memory Function

## Auto Power On Function

Plug it in and it turns itself on without pressing ON/OFF key

## Auto Re-Zero Function

Re-Zeroes automatically after data output

## Large Square Weighing Pan

Standard large square weighing pan on all models  
128 x 128mm for 0.001g resolution models  
165 x 165 mm for 0.01g and 0.1g resolution models

## Multiple Weighing Units & Programmable Unit

Uses Programmable or standard units of measure (g, ct, dwt etc.)

## Front Air Bubble Leveling

Easily check the balance's level from the front

## Quick Reference Card

A fast, convenient operating guide installed at the bottom of the balance



## Specifications

Specifications	GX-200		GX-400	GX-600	GX-800	GX-1000		GX-2000		GX-4000	GX-6100	GX-6000	GX-8000	
	GF-200	GF-300	GF-400	GF-600	GF-800	GF-1000	GF-1200	GF-2000	GF-3000	GF-4000	GF-6100	GF-6000	GF-8000	
Weighing capacity	210g	310g	410g	610g	810g	1100g	1210g	2100g	3100g	4100g	6100g	6100g	8100g	
Minimum weighing value	0.001g							0.01g					0.1g	
Repeatability (Standard Deviation)	0.001g							0.01g					0.1g	
Linearity	±0.002g			±0.003g			±0.02g				±0.03g	±0.1g		
Stabilization time (typical at FAST)	Approx. 1second				Approx. 1.5 seconds		Approx. 1second				Approx. 1.5seconds	Approx. 1second		
Sensitivity drift (10°C to 30°C/50°F-80°F)	±2ppm/oC (When automatic self calibration is not used)												±5ppm/°C (auto-self calibration OFF)	
Operating temperature	5°C to 40°C (41°F to 104°F), 85%RH or less (No condensation)													
Sensing method	Super Hybrid Sensor (SHS) *SHS: Patent issued and pending													
Display type	Vacuum Fluorescent Display (VFD)													
Display refresh rate	5times/second or 10times/second													
Counting mode	Minimum unit mass	0.001g						0.01g					0.1g	
	Number of samples	10, 25, 50 or 100pieces												
Percent mode	Minimum 100% reference mass	0.100g						1.00g					10.0g	
	Minimum 100% display	0.01%, 0.1%, 1% (Depends on reference mass stored)												
Standard serial I/F	RS-232C Interface with Windows Communication Tools (WinCT: included as CD-ROM)													
Weighing pan	128 x 128mm (5.04 x 5.04inch)						165 x 165mm (6.50 x 6.50inch)							
Calibration	Motor-driven Internal Calibration (GX only)													
External dimensions	210(W) x 317(D) x 86(H)mm (8.27 x 12.48 x 3.39inch)													
AC adapter	Confirm that the adapter type is correct for the local voltage and power receptacle													
Power consumption	Approx. 11VA (supplied by AC adapter)													
Net weight	Approx. 4.6kg(GX)/3.8kg(GF)						Approx. 5.1kg(GX)/4.3kg(GF)							

Notes: The internal mass is equal to (approximately) 500grams.  
EC Type Approval Confirmed (Approval No. UK2560)  
Standard Breeze break included for 1mg Minimum weighing value models

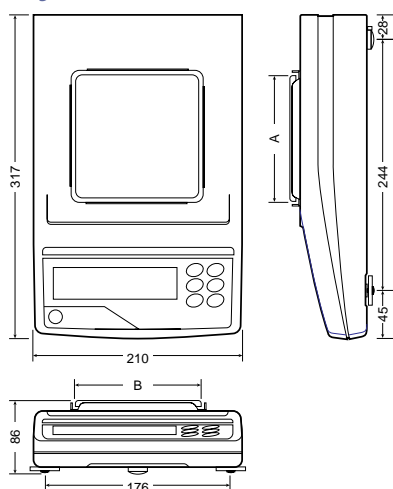
## Options

- GX-04\* Comparator Output with a Buzzer/  
RS-232C/Current Loop Output
- GX-06\* Analog Output/Current Loop Output
- GX-10 Glass Breeze Break for 128 x 128mm  
weighing pan size models
- GX-11 Glass Breeze Break for 165 x 165mm  
weighing pan size models
- GX-12 Animal weighing pan  
(not applicable for GX-200 and GF-200)
- GX-13 Density Determination Kit for 128 x 128mm  
weighing pan size models
- \* 04& 06 cannot co-exist
- \* Factory installed option

## Accessories

- AD-8121B Dot Matrix Compact Printer
- AD-8118B Universal Printer
- AD-8920 Remote Display
- AD-8922 Remote Controller
- AD-1682 Rechargeable Battery Unit  
(Maximum operating time: 8hours)
- AD-1683EX Static Eliminator
- AX-KO1710-200 RS-232C Cable (25P-9P)
- AX-SW-128 Foot Switch
- AX-073003691-S Dust cover for 128 x 128mm  
weighing pan size models
- AX-073003692-S Dust cover for 165 x 165mm  
weighing pan size models

## Physical Dimensions (mm)

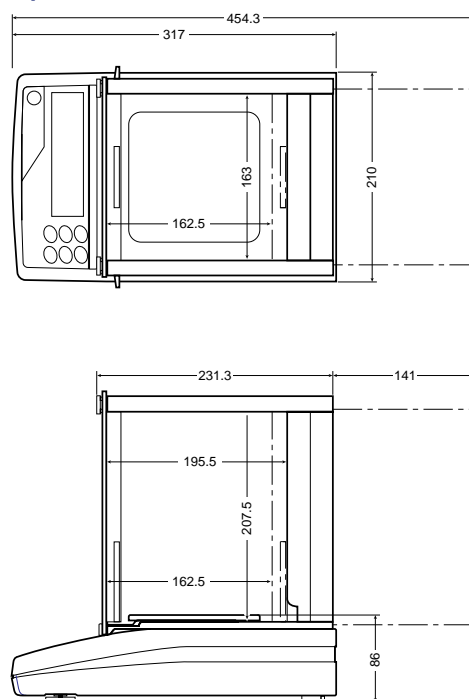


Pan size (mm)

Model	A	B
GX-200/400/600/800/1000	128	128
GF-200/300/400/600/800/1000	128	128
GX-2000/4000/6100/6000/8000	165	165
GF-1200/2000/3000/4000/6100/6000/8000	165	165

Approx. 1 second

## Dimensions With Optional Glass Breeze Break (mm)



Specifications subject to change for improvement without notice.

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**fb**  
fisher biotec  
australia

# ***GX-K***

# ***GF-K***

*Series*



*GF-K*



*GX-K*



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<http://www.aandd.jp>



# Our revolutionary Super Hybrid Sensor (SHS) technology provides fast response speed, accuracy and minimizes maintenance

*SHS technology combines the best of magnetic force restoration and single point parallelogram load sensing technologies. Its unique design provides the fastest response speed in its class - just 1.5 seconds! And if the time ever comes when the SHS needs repair, you just replace one of three parts - there is no need to replace the whole sensor! This offers the user Minimum Maintenance Costs.*

## Motor-driven Internal Calibration GX-K



The GX-K internal calibration with an internal mass saves time and money. External calibration requires a great deal of skill, time and an expensive external mass. With our internal calibration with internal mass, the balance is calibrated very quickly.

- Automatic Self Calibration — Self-calibrates automatically when the balance detects ambient temperature changes.
- One Touch Automatic Calibration — Allows you to calibrate the balance on demand with just the push of a button.

## Just 1.5 Seconds — Ultra Fast Response Speed



- Ultra Fast Response Speed – Just 1.5 Seconds.\* Ideal for installation with filling machines. \* “FAST” setting
- Ultra High Performance with minimum maintenance costs.

## Standard RS-232C



Incorporates bi-directional communication with a PC, printer or other peripheral device.

## Standard Windows Communication Tools Software

A free copy of WinCT-A&D's powerful and flexible data collection software tool for virtually instant connection to a PC and a network of other devices.



## Water and Dust Proof **IP65**

Balances protected from water and dust up to IP65 level.

### Easy to Clean

Simple and quick draining structure



### Water Proof RS-232C Cable (Optional GX-07K)



### Water Proof



Technology improves  
performance costs.

GX-K

GF-K



### GLP/GMP/GCP/ISO Compliance **GLP**

Allows GLP or LIMS balance management by outputting the balance ID number and data used to calibrate the balance. The data can be output to A&D's AD-8121B printer or a computer, indicating date, time, balance ID number, serial number and calibration data.

### ID Number **ID**

The balance ID number can be set. It is used to identify the balance when GLP is in use. The ID number is memorized and maintained once it is fixed, even if the AC adapter is removed.

### Auto Power On Function **ON**

Plug in the unit and it turns itself on without having to press the ON/OFF key.

### Display Auto Power Off Function **OFF**

Display turns off after 10 minutes of inactivity (can be disabled using function setting)

### Data Memory Function **Memory**

Format the Data Memory Function for:

- GX-K • 200 sets of weighing data
  - 100 sets of weighing data with Time & Date
  - 50 sets of GLP Data - Time & Date, Calibration Data, ID number and Serial number
  - 20 sets of Unit Weight for Counting Mode
  - 20 sets of Upper and Lower Limit Values for Comparator Mode
  - 20 sets of Tare Value
- GF-K • 40 sets of weighing data
  - 50 sets of Unit Weight for Counting Mode
  - 20 sets of Upper and Lower Limit Values for Comparator Mode
  - 20 sets of Tare Value

### **SMART RANGE**

### Smart Range Function (GX/GF-8K2/32K models only)

Accurate, fine weighing is possible even with a heavy container.

### Time & Date (GX-K models only)

Standard Time & Date Function complies with GLP and Interval Weighing in the Data Memory Function.

### Auto Self Checking

Automatically checks itself when setting the Automatic Adjustable Environment.

### Interval Time Setting

Weighing intervals of 2, 5, 10, 30 seconds and 1, 2, 5, 10 minutes in the Data Memory Function.

### Auto Re-Zero Function

Re-zeroes automatically after data output.

### Multiple Weighing Units & Programmable Unit

Uses Programmable or standard units of measurement. (g, ct, dwt, etc.)

### Quick Reference Card

A concise, convenient operating guide on the base of the balance.

### **ANIMAL**



**Animal Weighing Mode** allows you to quickly and accurately determine the weight of any live or unstable subject. Optional animal weighing pan is available.



**Automatic Adjustable Environment Setting** Adapts to the most suitable Environment Response Setting automatically with one-touch key operation. The response annunciator displays "FAST", "MID" and "SLOW." (GX-K)

**Manual Response Adjustment** can be set by pressing the MODE key and response speed can be adjusted to FAST, MID or SLOW. (GF-K)

### **COMPARATOR**



**Standard Comparator Function** offers increased flexibility and compatibility for a vast number of applications. You can input a target weight and weigh heavier or lighter items using either the keyboard or by placing samples on the pan. Hi, OK or Lo will be indicated on the display to show the comparison results. (GX-04 Comparator out)

### **ACAI**



**Automatic Counting Accuracy Improvement (ACAI)** is a novel and useful approach to ensuring the utmost in performance when counting even the smallest of items. ACAI automatically updates and refines the average piece weight used to determine the total quantity.



**Percentage Function** facilitates an effective and quick comparison of a sample or commodity against a known reference mass. Simply place an object on the pan to register its weight as 100%. Place another object on the pan to compare its weight in percentage mode.



**Overall Capacity Indication** is a unique and helpful feature. By indicating how much of the balance's capacity has been filled, the risk of overloading the balance is minimized.

## GX-K

		GX-8K	GX-8K2	GX-10K	GX-12K	GX-20K	GX-30K	GX-32K
Weighing capacity		8.1kg	8.1kg/2.1kg	10.1kg	12kg	21kg	31kg	31kg/6.1kg
Minimum weighing value		0.01g	0.1g/0.01g	0.01g		0.1g		1g/0.1g
Repeatability (Standard Deviation)		0.01g	0.05g/0.01g	0.01g		0.1g		0.5g/0.1g
Linearity		±0.03g	±0.1g/±0.02g	±0.03g		±0.2g		±1g/±0.2g
Stabilization time (on FAST setting)		Approximately 1.5 seconds						
Sensitivity drift (10°C to 30°C, when automatic self calibration is not used)		±2ppm/°C	±3ppm/°C	±2ppm/°C		±3ppm/°C		±5ppm/°C
Operating temperature & humidity range		5°C to 40°C, below 85%RH (no condensation)						
Calibration		Motor-driven Internal Calibration						
Display refresh rate		5 times/second or 10 times a second						
Counting mode	Minimum unit mass	0.01g	0.1g	0.01g		0.1g		1g
	Number of samples	10, 25, 50 or 100pieces						
Percent mode	Minimum 100% reference mass	1g	10g	1g		10g		100g
	Minimum percentage display	0.01%, 0.1%, 1% (depends on reference mass stored)						
Transmission		RS-232C (provided as standard, with WinCT, our proprietary data transmission software)						
Water and dust proof specifications		Compliant with IP65						
Weighing pan dimensions		270(W) x 210(D) mm (10.62 x 8.26 inch)						
External dimensions		300(W) x 355(D) x 111(H) mm (11.81 x 13.97 x 4.37 inch)						
Power supply (AC adapter)		Confirm that the adapter type is correct for the local voltage and power receptacle						
Net weight		Approximately 9.3kg						

1. Even if a heavy tare is used, the measurement can still be made within the fine range. (Smart range function) (GX-8K2/32K)

2. We recommend regular calibration and maintenance using an external calibration mass for more accurate linearity.

3. The internal mass is equal to (approximately) 860 grams.

4. The unit is equipped with an underhook for measuring density and weighing magnetic materials.

## GF-K

		GF-8K	GF-8K2	GF-10K	GF-12K	GF-20K	GF-30K	GF-32K
Weighing capacity		8.1kg	8.1kg/2.1kg	10.1kg	12kg	21kg	31kg	31kg/6.1kg
Minimum weighing value		0.01g	0.1g/0.01g	0.01g		0.1g		1g/0.1g
Repeatability (Standard Deviation)		0.01g	0.05g/0.01g	0.01g		0.1g		0.5g/0.1g
Linearity		±0.03g	±0.1g/±0.02g	±0.03g		±0.2g		±1g/±0.2g
Stabilization time (on FAST setting)		Approximately 1.5 seconds						
Sensitivity drift (10°C to 30°C)		±2ppm/°C	±3ppm/°C	±2ppm/°C		±3ppm/°C		±5ppm/°C
Operating temperature & humidity range		5°C to 40°C, below 85%RH (no condensation)						
Display refresh rate		5 times/second or 10 times a second						
Counting mode	Minimum unit mass	0.01g	0.1g	0.01g		0.1g		1g
	Number of samples	10, 25, 50 or 100pieces						
Percent mode	Minimum 100% reference mass	1g	10g	1g		10g		100g
	Minimum percentage display	0.01%, 0.1%, 1% (depends on reference mass stored)						
Transmission		RS-232C (provided as standard, with WinCT, our proprietary data transmission software)						
Water and dust proof specifications		Compliant with IP65						
Weighing pan dimensions		270(W) x 210(D) mm (10.62 x 8.26 inch)						
External dimensions		300(W) x 355(D) x 111(H) mm (11.81 x 13.97 x 4.37 inch)						
Power supply (AC adapter)		Confirm that the adapter type is correct for the local voltage and power receptacle						
Net weight		Approximately 8.3kg						

1. Even if a heavy tare is used, the measurement can still be made within the fine range. (Smart range function) (GF-8K2/32K)

2. The unit is equipped with an underhook for measuring density and weighing magnetic materials.

## Options

GX-04K\*1 Comparator Output with Buzzer/

RS-232C/current loop output

GX-06K\*1 Analog output/current loop output

GX-07K\*2 Waterproof RS-232C cable (5m)

GXK-012 Animal weighing pan

\*1 GX-04K, GX-06K, and the RS-232C (provided as standard) cannot be used at the same time.

Water and dust proof specifications cannot be applied when the GX-04K or GX-06K is installed.

\*2 Use the GX-07K optional water proof RS-232C cable in order to use the standard RS-232C interface for water and dust proof (IP65) capabilities.

## Accessories

AD-8121B Dot Matrix Compact Printer

AD-8118B Universal Printer

AD-8920 Remote Display

AD-8922 Remote Controller

AD-1683EX Static Eliminator

AD-1682 Rechargeable Battery Unit  
(Maximum operating time: 8hours)

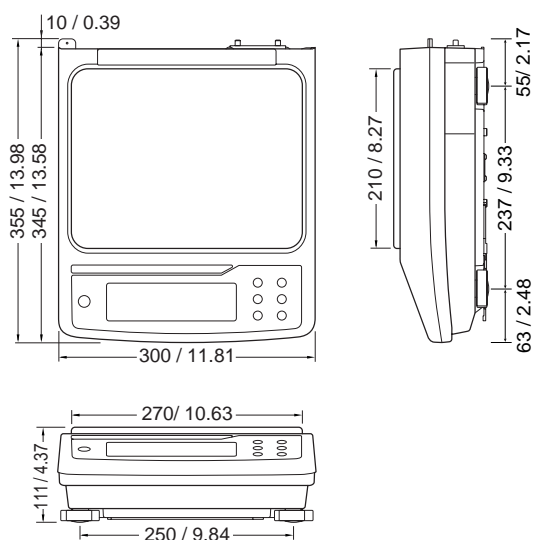
AX-KO1710-200 RS-232C Cable (25P-9P,2m)

AX-SW-128 Foot Switch



AD-8121B

## Physical Dimensions (mm / inches)



Specifications subject to change for improvement without notice.

**A&D** ...Clearly a Better Value  
A&D Company, Limited

**fB**  
fisher biotec  
australia



# GX GF Series

GX-400  
with optional glass breeze break

GX-600  
with standard breeze break



**AND** ...Clearly a Better Value  
A&D Company, Limited  
<http://www.aandd.jp>

# The World's

*Our revolutionary Super Hybrid Sensor (SHS) technology improves response speed, accuracy and minimizes maintenance costs. SHS combines the best of magnetic force restoration and single point parallelogram load sensing technologies. Its unique design provides the fastest response speed in its class – just 1 second! And if the time ever comes when the SHS needs repair, you just replace one of three parts – there is no need to replace the whole sensor! This translates to Minimum Maintenance Costs. (An additional benefit of our new SHS is that the GX automatically performs self calibration using the internal mass when the balance detects ambient temperature changes.)*



**Super Hybrid  
Sensor**  
(Patent Pending)



**Motor-driven  
Internal Calibration**

## Internal Calibration



The GX internal calibration with an internal mass saves time and money. External calibration requires a great deal of skill, time and an expensive external mass. With our internal calibration with internal mass, the balance is calibrated very quickly.

- Automatic Self Calibration — Self-calibrates automatically when the balance detects ambient temperature changes.
- One Touch Automatic Calibration — Allows you to calibrate the balance on demand with just the push of a button.
- Calibration is essential for accuracy in weighing. For example, in high resolution balances, changes in sensitivity drift can be caused by changes in the ambient temperature. Take the GX 600 for example, the weight might change by  $\pm 0.010\text{g}$  with a change of  $10^{\circ}\text{C}$ . (Sample's weight: 500g)
- The GX's internal calibration mass is adjusted to an "OIML F1 class level." by the standard balance calibrated with an "OIML E2 class level mass". (The GX's internal calibration mass is not "the standard mass for legal metrology" nor "OIML's level of calibration mass." Instead it is the mass for adjustment.)

## Just 1 Second — Ultra Fast Response Speed

- Ultra Fast Response Speed—Just 1 Second.\* Ideal for installation with filling machines. \* "FAST" setting
- Ultra High Performance with minimum maintenance costs.

## Standard RS-232C



Incorporates bi-directional communication with a PC, printer or other peripheral device.

## Standard Windows Communication Tools Software WinCT



A free copy of WinCT-A&D's powerful and flexible data collection software tool for virtually instant connection to a PC and a network of other devices.

# Most User-Friendly

GX



GF



SHS  
Super Hybrid Sensor

Internal Calibration  
CAL

888  
VFD Display

FDC  
Full Digital Calibration

RS-232C  
STANDARD

WinCT

COMPARATOR

GLP

A4AI  
Automatic Counting  
Accuracy Improvement

OFF  
ANIMAL



# y Balances...

888  
VFD Display



Bright, bold, blue vacuum fluorescent display (VFD) that is virtually unmistakable from any viewing angle.

ANIMAL



**Animal Weighing Mode** allows you to quickly and accurately determine the weight of any live or unstable subject. Optional animal weighing pan (GX-12) is available.



**Automatic Adjustable Environment Setting** Adapts to the most suitable Environment Response Setting automatically with one-touch key operation. The response annunciator displays "FAST", "MID" and "SLOW." (GX)

**Manual Response Adjustment** can be set by pressing the MODE key and response speed can be adjusted to FAST, MID or SLOW.

COMPARATOR



**Standard Comparator Function** offers increased flexibility and compatibility for a vast number of applications. You can input a target weight and weigh heavier or lighter items using either the keyboard or by placing samples on the pan. Hi, OK or Lo will be indicated on the display to show the comparison results. (GX-04 Comparator output)

ACAI



**Automatic Counting Accuracy Improvement (ACAI)** is a novel and useful approach to ensuring the utmost in performance when counting even the smallest of items. ACAI automatically updates and refines the average piece weight used to determine the total quantity.



**Percentage Function** facilitates an effective and quick comparison of a sample or commodity against a known reference mass. Simply place an object on the pan to register its weight as 100%. Place another object on the pan to compare its weight in percentage mode.



**Overall Capacity Indication** is a unique and helpful feature. By indicating how much of the balance's capacity has been filled, the risk of overloading the balance is minimized.

## Main Features

## GXseries

## GFseries

SHS (Super Hybrid Sensor)	✓	✓
Internal Calibration	✓	—
VFD Display	✓	✓
WinCT	✓	✓
Data Memory Function	✓	✓
Automatic Adjustable Environment Setting	✓	(Manual)
Auto Self Checking	✓	✓
Density Determination Function	✓	✓
Quick Reference Card	✓	✓
Underhook	✓	✓
Time & Date Function	✓	—
Large Square Weighing Pan	✓	✓
Comparator Function	✓	✓
Animal Weighing	✓	✓
Capacity Indicator	✓	✓
ACAI Counting Function	✓	✓
Percentage Function	✓	✓
Front Air Bubble Leveling	✓	✓
Standard RS-232C	✓	✓
GLP, GMP, GCP, ISO Compliance Data Output	✓	✓
Splash Proof Keyboard and Display	✓	✓
Display Auto Power Off Function	✓	✓
Aluminum Die-Cast Case	✓	✓

## Splash Proof Keyboard and Display

Balances protected from dust and spills

## GLP GLP/GMP/GCP/ISO Compliance

Allows GLP or LIMS balance management by outputting the Balance ID number and data used to calibrate the balance. The data can be output to A&D's AD-8121B printer or a computer, indicating date, time, Balance ID number, serial number and calibration data.



MODEL: GX-2000  
S/N: 01234567  
ID: ABCDEF0  
DATE: 2003-01-01  
TIME: 12:34:56  
CALIBRATED<INT.>  
SIGNATURE:



## Standard RS-232C

Bi-directional communication with a PC or connects directly to a printer

## Commands

A PC can control the balance by sending commands to the balance.

- Commands to query weighing data
- Commands to control the balance
- Commands to control the memory function
- Commands to control the comparator function

## ID Number

The balance ID number can be set. It is used to identify the balance when GLP is used. The ID number is memorized and maintained once it is fixed, even if the AC adapter is removed.



## Display Auto Power Off Function

Display turns off after 10 minutes of inactivity  
(can be disabled when undesired)

## Data Memory Function

(Patent Pending)

Format the Data Memory Function for:

- GX • 200 sets of weighing data
  - 100 sets of weighing data with Time & Date
  - 50 sets of GLP Data–Time & Date, Calibration Data, ID number and Serial number
  - 20 sets of Unit Weight for Counting Mode
- GF • 40 sets of weighing data
  - 20 sets of Unit Weight for Counting Mode

## Time & Date (GX only)

Standard Time & Date Function complies with GLP and Interval Weighing in the Data Memory Function

## Auto Self Checking

Automatically checks itself when setting the Automatic Adjustable Environment

## Standard Underhook

Ideal for density determination and weighing magnetic substances.

## Density Measurement Function

Picture shown with GX-13 Density Measurement Kit



## Interval Time Setting

Weighing intervals of 2, 5, 10, 30 seconds and 1, 2, 5, 10 minutes in the Data Memory Function

## Auto Power On Function

Plug it in and it turns itself on without pressing ON/OFF key

## Auto Re-Zero Function

Re-Zeroes automatically after data output

## Large Square Weighing Pan

Standard large square weighing pan on all models  
128 x 128mm for 0.001g resolution models  
165 x 165 mm for 0.01g and 0.1g resolution models

## Multiple Weighing Units & Programmable Unit

Uses Programmable or standard units of measure (g, ct, dwt etc.)

## Front Air Bubble Leveling

Easily check the balance's level from the front

## Quick Reference Card

A fast, convenient operating guide installed at the bottom of the balance



## Specifications

Specifications	GX-200		GX-400	GX-600	GX-800	GX-1000		GX-2000		GX-4000	GX-6100	GX-6000	GX-8000	
	GF-200	GF-300	GF-400	GF-600	GF-800	GF-1000	GF-1200	GF-2000	GF-3000	GF-4000	GF-6100	GF-6000	GF-8000	
Weighing capacity	210g	310g	410g	610g	810g	1100g	1210g	2100g	3100g	4100g	6100g	6100g	8100g	
Minimum weighing value	0.001g							0.01g					0.1g	
Repeatability (Standard Deviation)	0.001g							0.01g					0.1g	
Linearity	±0.002g			±0.003g			±0.02g				±0.03g	±0.1g		
Stabilization time (typical at FAST)	Approx. 1second				Approx. 1.5 seconds		Approx. 1second				Approx. 1.5seconds	Approx. 1second		
Sensitivity drift (10°C to 30°C/50°F-80°F)	±2ppm/oC (When automatic self calibration is not used)												±5ppm/°C (auto-self calibration OFF)	
Operating temperature	5°C to 40°C (41°F to 104°F), 85%RH or less (No condensation)													
Sensing method	Super Hybrid Sensor (SHS) *SHS: Patent issued and pending													
Display type	Vacuum Fluorescent Display (VFD)													
Display refresh rate	5times/second or 10times/second													
Counting mode	Minimum unit mass	0.001g						0.01g					0.1g	
	Number of samples	10, 25, 50 or 100pieces												
Percent mode	Minimum 100% reference mass	0.100g						1.00g					10.0g	
	Minimum 100% display	0.01%, 0.1%, 1% (Depends on reference mass stored)												
Standard serial I/F	RS-232C Interface with Windows Communication Tools (WinCT: included as CD-ROM)													
Weighing pan	128 x 128mm (5.04 x 5.04inch)						165 x 165mm (6.50 x 6.50inch)							
Calibration	Motor-driven Internal Calibration (GX only)													
External dimensions	210(W) x 317(D) x 86(H)mm (8.27 x 12.48 x 3.39inch)													
AC adapter	Confirm that the adapter type is correct for the local voltage and power receptacle													
Power consumption	Approx. 11VA (supplied by AC adapter)													
Net weight	Approx. 4.6kg(GX)/3.8kg(GF)						Approx. 5.1kg(GX)/4.3kg(GF)							

Notes: The internal mass is equal to (approximately) 500grams.  
EC Type Approval Confirmed (Approval No. UK2560)  
Standard Breeze break included for 1mg Minimum weighing value models

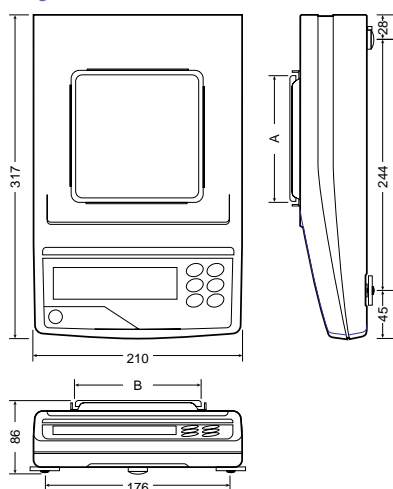
## Options

- GX-04\* Comparator Output with a Buzzer/  
RS-232C/Current Loop Output
- GX-06\* Analog Output/Current Loop Output
- GX-10 Glass Breeze Break for 128 x 128mm  
weighing pan size models
- GX-11 Glass Breeze Break for 165 x 165mm  
weighing pan size models
- GX-12 Animal weighing pan  
(not applicable for GX-200 and GF-200)
- GX-13 Density Determination Kit for 128 x 128mm  
weighing pan size models
- \* 04& 06 cannot co-exist
- \* Factory installed option

## Accessories

- AD-8121B Dot Matrix Compact Printer
- AD-8118B Universal Printer
- AD-8920 Remote Display
- AD-8922 Remote Controller
- AD-1682 Rechargeable Battery Unit  
(Maximum operating time: 8hours)
- AD-1683EX Static Eliminator
- AX-KO1710-200 RS-232C Cable (25P-9P)
- AX-SW-128 Foot Switch
- AX-073003691-S Dust cover for 128 x 128mm  
weighing pan size models
- AX-073003692-S Dust cover for 165 x 165mm  
weighing pan size models

## Physical Dimensions (mm)

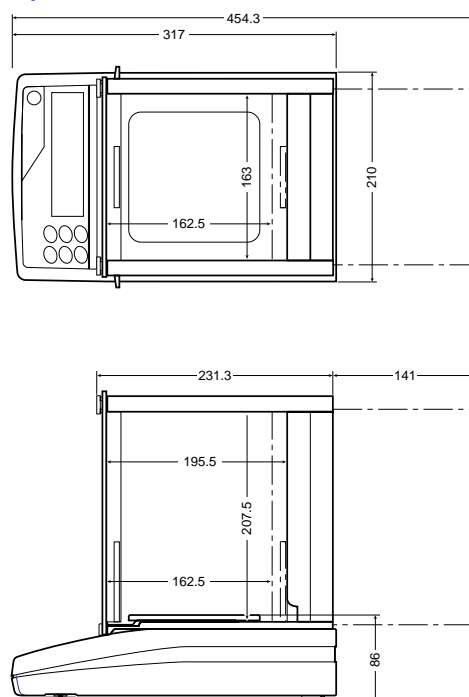


### Pan size (mm)

Model	A	B
GX-200/400/600/800/1000	128	128
GF-200/300/400/600/800/1000		
GX-2000/4000/6100/6000/8000	165	165
GF-1200/2000/3000/4000/6100/6000/8000		

Approx. 1 second

## Dimensions With Optional Glass Breeze Break (mm)



Specifications subject to change for improvement without notice.

**AND** ...Clearly a Better Value  
A&D Company, Limited





*Precision Balances*

# *FX-i*

*Series*



***FX-120i***  
122g x 0.001g

***FX-200i***  
220g x 0.001g

***FX-300i***  
320g x 0.001g

***FX-1200i***  
1220g x 0.01g

***FX-2000i***  
2200g x 0.01g

***FX-3000i***  
3200g x 0.01g

# **AND**

*...Clearly a Better Value*

**A&D MERCURY PTY. LTD.**

<http://www.andmercury.com.au>



# Realizing Compact, Incre

We have developed a Miniaturized SHS (Super Hybrid Sensor) to which is 40% lighter and 47% smaller than our GF series with a while maintaining A&D's superior weighing functions.

## B5 Size footprint

Ideal for installation and use in narrow spaces



## Compact SHS (Super Hybrid Sensor) - 1 second stabilization

Quick stabilization speed with accurate weighing for better productivity



## VFD - Vacuum Fluorescent Display

Large VFD for easy-to-read weighing results



## SCF - Statistical Calculation Function

Can display and/or output statistical calculation data as No. (number of data), SUM (total), MAX (maximum), MIN (minimum), R [range (maximum - minimum)], AVE (average), SD (standard deviation) and CV (coefficient of variation)



## Quick USB interface (FXi-02)

Easy-to-use optional USB interface, with no driver installation necessary, for transfer of weighing data to a computer (applicable OS - Windows 98 OSR2 or later)



## Standard RS-232C interface

Incorporates bi-directional communication with a PC, printer or other peripheral devices



## GLP/GMP/GCP/ISO Compliant

In accordance with GLP and LIMS regulations, the balance ID number and calibration data can be printed out using A&D's AD-8121B or a PC



## Comparator function

Easy to compare weighing results by setting HI limit and LO limit to display HI,OK,LO indicator



## Buzzer function

A beeping sound to indicate HI, LO or OK can be selected for use with the comparator function



## Digital calibration function

Simple and easy to calibrate the balance with external calibration mass and possible to adjust the mass accuracy by  $\pm 50$  digits

## Built-in rechargeable battery (FXi-09)

An optional Ni-MH rechargeable battery pack can be fitted into the FX-I series for use without AC power and for mobile applications (10 hours charging time for 8 hours operation)

## Multiple weighing units of measurement

Programmable or standard weighing units of measurement can be selected; g, pcs, %, oz, lb, L oz, ozt, ct, mom, dwt, GN, tl, tol, mes and MLT

## Response Indicator function

Selectable FAST, MID or SLOW response to suit weighing environment conditions



## LAN-Ethernet interface (FXi-08) with WinCT-Plus software

WinCT-Plus software makes it possible for the user to easily set up an IP address, subnet mask etc. The user can also send commands for control and acquisition of data from multiple FX-I balances

A&D  
MODEL FX-3001  
S/N 01234567  
ID ABCDEFG  
DATE 2006/09/01  
TIME 12:34:56  
CALIBRATED(EXT.)  
CAL.WEIGHT  
+200.000 g  
SIGNATURE

WinCT-Plus



Provided by end-user

Ethernet Hub



Note: Ethernet Hub and cables must be provided by end-users



# asing Functions!

achieve a compact precision balance,  
25% smaller footprint,



# FX-i

**SHS** Super Hybrid Sensor  
**888** VFD Display  
**44A** Automatic Counting Accuracy Improvement  
**GLP** Full Display Lockout  
**RS-232C** Full Digital Communication  
**FDC** Full Digital Communication  
**COMPARATOR** **ON** **OFF** Buzzer Function  
**ID** **LAN**  
**ANIMAL** **USB** **underhook** **%** **SCF** (Special Counter Filter)

## ANIMAL

### Animal weighing function

The HOLD function enables freezing of weighing data for animal weighing applications and an ANIMAL indicator appears on the display



### 44A - Automatic Counting Accuracy Improvement

This counting function recalculates the average unit weight each time a sample is added to eliminate errors caused by variations in unit weight



### Percent mode function

A sample can be registered as 100% and the weight of another sample can be compared as a percentage



### Underhook

The underhook, for hanging applications, allows for measurement of magnetic materials and density measurements in air and water



### Auto Power ON function

The weighing mode display activates automatically with AC power so there is no need to press the ON/OFF key



### Auto Power OFF function

The display switches OFF automatically when the balance is inactive for 10 minutes as a power-saving tool

### Capacity indicator function

Weight on the pan displayed as a percentage of full capacity

### Breeze breaks

Small and large breeze breaks are available to protect against wind for more accurate weighing. The small breeze break comes as standard with the FX-120i, FX-200i and FX-300i which are all 0.001g weighing resolution models

### EMC - Electromagnetic Compatibility

The FX-i meets EMC regulations and is immune to the effects of electromagnetic fields of up to 10V/m



## Specifications

Specifications

	FX-120i	FX-200i	FX-300i	FX-1200i	FX-2000i	FX-3000i
Sensing method	Compact Super Hybrid Sensor (SHS)					
Gram (g)	122x0.001	220x0.001	320x0.001	1220x0.01	2200x0.01	3200x0.01
Decimal Ounce (oz)	4.30x0.00005	7.76x0.00005	11.28x0.00005	43.0x0.0005	77.6x0.0005	112.8x0.0005
Pound (lb)	0.268x0.000005	0.485x0.000005	0.705x0.000005	2.68x0.00005	4.85x0.00005	7.05x0.00005
Pound / Ounce (L, oz)	0L4.30ozx0.01 oz	0L7.76ozx0.01 oz	0L11.29ozx0.01 oz	2L11.03ozx0.01 oz	4L13.60ozx0.01 oz	7L0.88ozx0.01 oz
Troy Ounce (ozt)	3.92x0.00005	7.07x0.00005	10.28x0.00005	39.2x0.0005	70.7x0.0005	102.8x0.0005
Carat (ct)	610x0.005	1100x0.005	1600x0.005	6100x0.05	11000x0.05	16000x0.05
Momme (mom)	32.2x0.0005	58.6x0.0005	85.3x0.0005	322x0.005	586x0.005	853x0.005
Pennyweight (dwt)	78.6x0.001	141.7x0.001	206.2x0.001	786x0.01	1417x0.01	2062x0.01
Grain (GN)	1882x0.02	3395x0.02	4938x0.02	18827x0.02	33951x0.02	49383x0.02
Tael (TL)	3.22x0.00005	5.82x0.00005	8.46x0.00005	32.2x0.0005	58.2x0.0005	84.6x0.0005
Tola (t)	10.4x0.0001	18.8x0.0001	27.4x0.0001	104x0.001	188x0.001	274x0.001
Messghal (MS)	26.0x0.0005	46.9x0.0005	68.2x0.0005	260.0x0.005	469x0.005	682x0.005
Counting Mode Minimum unit mass	0.001g			0.01g		
Number of samples	5, 10, 25, 50 or 100 pieces					
Percent Mode Minimum 100% reference mass	0.100g			1.00g		
Minimum 100% display	0.01%, 0.1%, 1% (depends on the reference mass stored)					
Repeatability (Standard Deviation)	0.001g			0.01g		
Linearity	±0.002g			±0.02g		
Stabilization time (typically set at FAST)	Approx. 1 second					
Sensitivity drift (10°C to 30°C)	±2ppm / °C					
Operating temperature	5°C to 40°C (41°F to 104°F), 85% RH or less (No condensation)					
Display type	Vacuum Fluorescent Display (VFD)					
Display refresh rate	5 times /second, 10 times /second or 20 times /second					
Standard serial interface	RS-232C Interface					
Weighing pan (diameter)	130mm			150mm		
External calibration mass	100g 50g	200g 100g	300g 200g 100g	1000g 500g	2000g 1000g	3000g 2000g 1000g
AC adaptor	Confirm that the adaptor type is correct for the local voltage and power receptacle					
Power consumption	Approx. 11VA (supplied to the AC adaptor)					
External dimensions	193 (W) x 262.5 (D) x 84.5 (H) mm					
Net weight	Approx. 2.5kg					

## Options

- FXi-02\*** Quick USB interface with cable
- FXi-08\*** Ethernet interface with WinCT-Plus software
- FXi-09\*** Built-in rechargeable battery
- FXi-10** Small breeze break
- FXi-11** Large breeze break

\* FXi-02, FXi-08 and FXi-09 cannot be used at the same time.

## Accessories

- AD-1683** Static eliminator
- AD-8920** Remote display
- AD-8922** Remote controller
- AD-8121B** Compact Printer
- AD-8526** RS/Ethernet converter

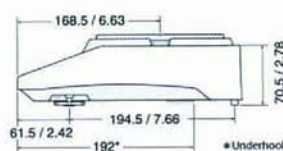
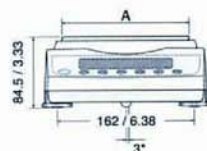


AD-8121B

## External Dimensions (mm / inches)

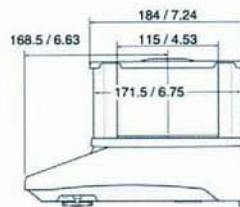
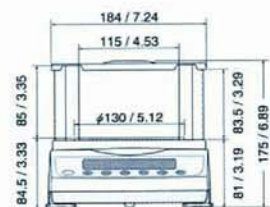
### Pan Size

Model	A
FX-120i / 200i / 300i	130 / 5.12
FX-1200i / 2000i / 3000i	150 / 5.91



### Dimensions with Small Breeze Break (FXi-10)

(Comes equipped with FX-120i / 200i / 300i)



# AND

...Clearly a Better Value

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**fB**  
fisher biotec  
australia



# *FX-i* *FX-iWP* Series



**A&D** ...Clearly a Better Value  
A&D Company, Limited  
<http://www.aandd.jp>

# Realizing Compact, Increasing Functions!

We have developed a Miniaturized SHS\* (Super Hybrid Sensor) to achieve a highly compact precision balance, which is 40% lighter and 47% smaller than our GF series with a 25% smaller footprint, while maintaining A&D's superior weighing functions. \*Patent Pending



**FX-120i**  
122gx1mg

**FX-200i**  
220gx1mg

**FX-300i**  
320gx1mg

**FX-1200i**  
1220gx10mg

**FX-2000i**  
2200gx10mg

**FX-3000i**  
3200gx10mg

# FX-i

**SHS**  
Super Hybrid Sensor

**888**  
VFD Display

**ACAI**  
Automatic Counting Accuracy Improvement

**GLP**

**RS-232C**

**FDC**  
Full Digital Calibration

**COMPARATOR**

**ON**

**OFF**

**Buzzer Function**

**ID**

**LAN**

**ANIMAL**

**USB**

**under hook**

**%**

**SCF**  
Statistical Calibration Function

## Response Indicator Function

Selectable FAST, MID or SLOW response to suit weighing environment conditions

## Comparator Function

Easy to compare weighing results by setting HI limit and LO limit to display HI, OK, LO indicator

## ACAI – Automatic Counting Accuracy Improvement

This counting function recalculates the average unit weight each time a sample is added to eliminate errors caused by variations in unit weight

## Percent Mode Function

A sample can be registered as 100% and the weight of another sample can be compared as a percentage

## ***B5 Size Footprint***

Ideal for installation and use in narrow spaces

## ***Compact SHS–1 Second Stabilization***

Quick stabilization speed with accurate weighing for better productivity

## ***Shock Absorber Function\****

The internal shock absorber protects the SHS from the adverse effects of vertical or transverse overloading. \*Patent Pending

## ***Quick USB Interface (FXi-02)***

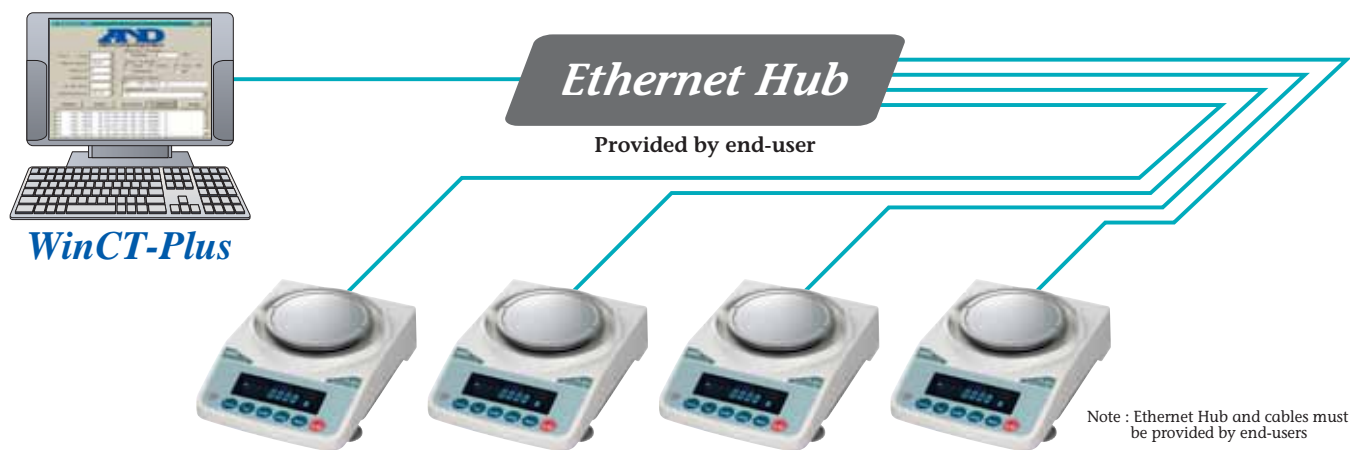
Easy-to-use optional USB interface, **with no driver installation necessary**, for transfer of weighing data to a computer (applicable OS – Windows 98 OSR2 or later)

## ***SCF–Statistical Calculation Function***

Can display and/or output statistical calculation data as No. (number of data), SUM (total), MAX (maximum), MIN (minimum), R [range (maximum – minimum)], AVE (average), SD (standard deviation) and CV (coefficient of variation)

## ***LAN–Ethernet Interface (FXi-08) with WinCT-Plus Software***

WinCT-Plus software makes it possible for the user to easily set up an IP address, subnet mask etc. The user can also send commands for control and acquisition of data from multiple FX-i balances.



### **Animal Weighing Function**

The HOLD function enables freezing of weighing data for animal weighing applications and an ANIMAL indicator appears on the display

### **Standard RS-232C Interface**

Incorporates bi-directional communication with a PC, printer or other peripheral devices

### **Underhook**

The underhook, for hanging applications, allows for measurement of magnetic materials and density measurements in air and water

### **Multiple Weighing Units of Measurement**

Programmable or standard weighing units of measurement can be selected; g, pcs, %, oz, lb, L oz, oz, ct, mom, dwt, GN, tl, tol, mes and MLT

# *The World's First IP65 Compliant, Water / Dust Proof Precision (1mg) Balance!*

*Yet another breakthrough from A&D enabling the measurement of liquid or powder at 1mg resolution, eliminating any worries about damage to the balance*



**FX-120iWP**  
122gx1mg

**FX-200iWP**  
220gx1mg

**FX-300iWP**  
320gx1mg

**FX-1200iWP**  
1220gx10mg

**FX-2000iWP**  
2200gx10mg

**FX-3000iWP**  
3200gx10mg

# FX-iWP

**SHS**  
Super Hybrid Sensor

**888**  
VFD Display

**44A**  
Anti-static Coating  
Accuracy Approximation

**GLP**

**RS-232C**

**FDC**  
Full Digital Calibration

**COMPARATOR**

**ON/OFF**

**OFF**

**Buzzer Function**

**ID**

**LAN**

**ANIMAL**

**USB**

**under heat**

**SCF**

**IP65**

## **GLP/GMP/GCP/ISO Compliant**

In accordance with GLP and LIMS regulations, the balance ID number and calibration data can be printed out using A&D's AD-8121B or a PC

## **Auto Power OFF Function**

The display switches OFF automatically when the balance is inactive for 10 minutes as a power-saving tool

## **Auto Power ON Function**

The weighing mode display activates automatically with AC power so there is no need to press the ON/OFF key

## **Built-in Rechargeable Battery (FXi-09)\***

An optional Ni-MH rechargeable battery pack can be fitted into the FX-i series for use without AC power and for mobile applications (10 hours charging time for 8 hours operation)

\* Not IP65 compliant when used with FX-iWP





*IP65 means that this kind of measurement is possible.*



*Highly Visible Display*



*Firmly Sealed Pan Support*



*Water Proof RS-232C Cable (optional)*



*Large Breeze Break (optional)*

The small breeze break comes as standard with the FX-120i(WP), FX-200i(WP) and FX-300i(WP), which are all 1mg resolution models.



*Precision Balances*

# *FZ-i* *FX-i* Series



*FZ-i*



*FX-i*



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<http://www.aandd.jp>



# “High Functionality You Can Afford”

The FZ-i/FX-i Series, a new addition to A&D’s precision balances, rivals our GX/GF Series in performance and quality, but offers higher accessibility, bringing to you a cost-effective solution for a diverse array of applications.

## Newly developed, Air-pump Controlled Internal Calibration\* (FZ-i models only) \*Patent Pending

For the internal calibration of the FZ-i Series, A&D adopted a direct-driving method that utilizes air pressure for its power source. This new method features a simple structure, high reliability and a fail-safe mechanism – the internal mass returns to the original position even if the calibration is interrupted by power failure, etc.

### One Touch Automatic Calibration (FZ-i models only)

With just one press of a key, you can ensure the accuracy of your balance.

## Compact, B5 Size Footprint

By taking advantage of our Compact Super Hybrid Sensor (C-SHS) technology\*, A&D has significantly reduced the size of the FZ-i/FX-i Series – 25% smaller footprint than the GX/GF Series, making it ideal for installation and use in narrow spaces. \*Patent Pending

## Fast, 1 Second Stabilization

The C-SHS combines the best of magnetic force restoration and single point parallelogram load sensing technologies. This allows the C-SHS to realize a response speed of **just 1 second** while maintaining extremely high span stability. The FZ-i/FX-i Series will maximize your productivity and efficiency.

## Shock Absorber Function\* \*Patent Pending

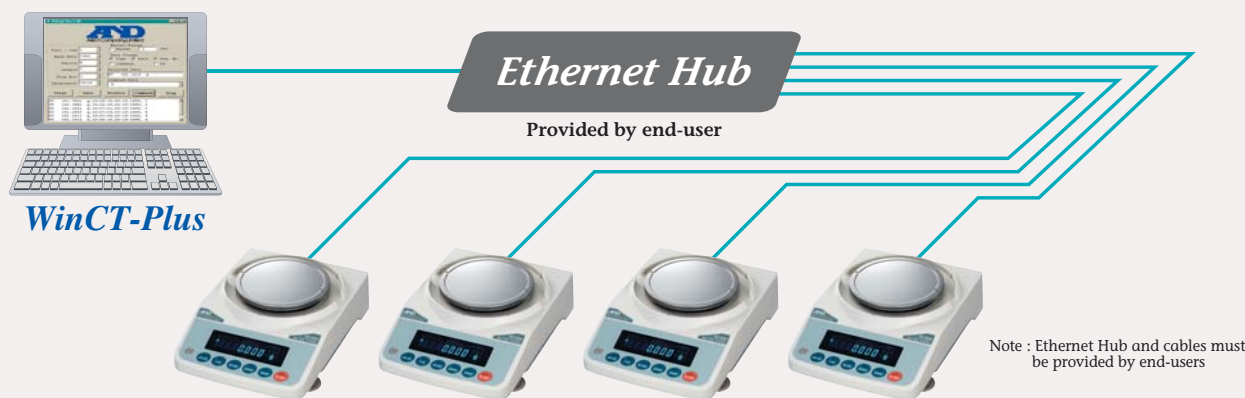
The internal shock absorber protects the C-SHS from the adverse effects of vertical and transverse overloading.





## ***LAN-Ethernet Interface (FXi-08) with WinCT-Plus Software***

WinCT-Plus software makes it possible for the user to easily set up an IP address, subnet mask, etc. The user can also send commands for control and acquisition of data from multiple balances.



## ***Quick USB Interface (FXi-02)***

Easy-to-use optional USB interface, **with no driver installation necessary**, for transfer of weighing data to a computer (applicable OS – Windows 98 OSR2 or later)

## ***Standard RS-232C Interface***

Incorporates bi-directional communication with a PC, printer or other peripheral devices.

### **Multiple Weighing Units**

Programmable or standard weighing units of measurement can be selected; g, pcs, %, oz, lb, L oz, ozt, ct, mom, dwt, GN, tl, tol, mes and MLT

### **GLP/GMP/GCP/ISO Compliant**

In accordance with GLP and LIMS regulations, the balance ID number and calibration data can be printed out using A&D's AD-8121B or a PC

### **Statistical Calculation Function**

Can display and/or output statistical calculation data as No. (number of data), SUM (total), MAX (maximum), MIN (minimum), R [range (maximum – minimum)], AVE (average), SD (standard deviation) and CV (coefficient of variation)

### **Response Indicator Function**

Selectable FAST, MID or SLOW response to suit weighing environment conditions.

### **ACAI – Automatic Counting Accuracy Improvement**

This counting function recalculates the average unit weight each time a sample is added to eliminate errors caused by variations in unit weight

### **Built-in Rechargeable Battery (FXi-09)**

An optional Ni-MH rechargeable battery pack can be fitted into the FZ-i/FX-i Series for use without AC power and for mobile applications (10 hours charging time for 8 hours operation)



### ***Large Breeze Break (FXi-11)***

The small breeze break comes as standard with all the FZ-i models, FX-120i, FX-200i and FX-300i.

## Specifications

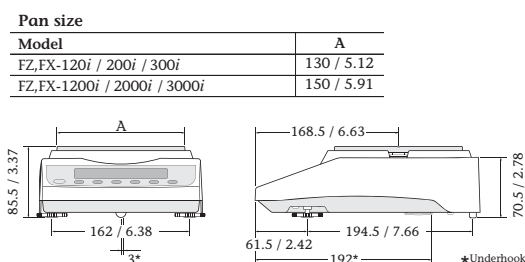
Specifications		FZ-120 <i>i</i> FX-120 <i>i</i>	FZ-200 <i>i</i> FX-200 <i>i</i>	FZ-300 <i>i</i> FX-300 <i>i</i>	FZ-1200 <i>i</i> FX-1200 <i>i</i>	FZ-2000 <i>i</i> FX-2000 <i>i</i>	FZ-3000 <i>i</i> FX-3000 <i>i</i>
Weighing capacity		122g	220g	320g	1220g	2200g	3200g
Minimum weighing value		0.001g			0.01g		
Counting mode	Minimum unit mass	0.001g			0.01g		
	Number of samples	5, 10, 25, 50 or 100 pieces					
Percent mode	Minimum 100% reference mass	0.100g			1.00g		
	Minimum 100% display	0.01%, 0.1%, 1% (depends on the reference mass stored)					
Repeatability (Standard Deviation)		0.001g			0.01g		
Linearity		±0.002g			±0.02g		
Stabilization time (typically set at FAST)		Approx. 1 second					
Sensitivity drift (10°C to 30°C)		±2ppm /°C					
Operating temperature		5°C to 40°C (41°F to 104°F), 85%RH or less (no condensation)					
Display type		Vacuum Fluorescent Display (VFD)					
Display refresh rate		5 times /second, 10 times /second or 20 times /second					
Standard serial interface		RS-232C Interface					
Weighing pan (diameter)		130mm			150mm		
External calibration mass		100g	200g	300g	1000g	2000g	3000g
		50g	100g	200g	500g	1000g	2000g
				100g			1000g
AC adaptor		Confirm that the adaptor type is correct for the local voltage and power receptacle					
Power consumption		Approx. 11VA (supplied to the AC adaptor)					
External dimensions		193 (W) X 262.5 (D) X 85.5 (H) mm					
Net weight		FZ- <i>i</i> Approx. 3.0kg / FX- <i>i</i> Approx. 2.5kg					

## Options

- FXi-02\*** Quick USB interface with cable
- FXi-08\*** Ethernet interface with WinCT-Plus software
- FXi-09\*** Built-in rechargeable battery
- FXi-10** Small breeze break
- FXi-11** Large breeze break
- FXi-12** Animal weighing pan (FZ,FX-1200i / 2000i / 3000i)
- FXi-15** Carrying case

\* FXi-02, FXi-08 and FXi-09 cannot be used at the same time.

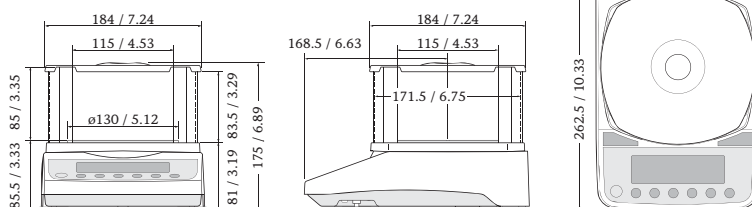
## External Dimensions (mm/inches)



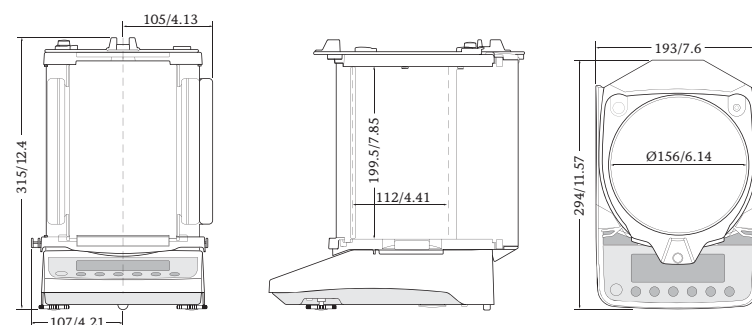
## Accessories

- AD-1683** Static eliminator
- AD-1684** Electrostatic fieldmeter
- AD-1689** Tweezers for calibration weight
- AD-8920A** Remote display
- AD-8922** Remote controller
- AD-8121B** Compact printer
- AD-8118C** Universal printer
- AX-KO2466-200** RS-232C cable (9P-9P)
- AD-8526** Serial/Ethernet converter
- AX-USB-9P** Serial/USB converter
- AX-CARATPAN-W** Carat pan (silver, 2pcs)
- AX-CARATPAN-B** Carat pan (black, 2pcs)
- AX-FXi-31** Main unit cover (5pcs)

### Dimensions with Small Breeze Break (FXi-10) (Comes equipped with FZ,FX-120i/200i/300i, FZ-1200i/2000i/3000i)



### Dimensions with Large Breeze Break (FXi-11)



AD-8121B

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# GP

## Series

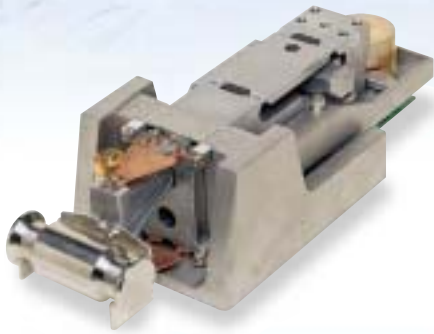


*A new contender in the industrial  
balance field*



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A&D Company, Limited  
<http://www.aandd.jp>

# The World's Mos



*The GP Series incorporates our enhanced weighing sensor, Double Leveraged Super Hybrid Sensor (SHS).*

*Building on the basic SHS features of fast and stabilization, our enhanced SHS technology brings the most accurate weighing results to the industrial balances in 12kg to 101kg capacities class.*



## Internal Calibration

The GP internal calibration with an internal mass saves time and money. External calibration requires a great deal of skill, time and an expensive external mass. With our internal calibration with internal mass, the balance is calibrated very quickly.

- Automatic Self Calibration – Self-calibrates automatically when the balance detects ambient temperature changes
- One Touch Automatic Calibration – Allows you to calibrate the balance on demand with just the push of a button.
- Calibration is essential for accuracy in weighing. For example, in high resolution balances, changes in sensitivity drift can be caused by changes in the ambient temperature. Take the GP-30K for example, the weight might change by 0.9g with a change of 10 °C. (Sample's weight: 30kg)
- Thanks to our Double Leveraged Super Hybrid Sensor, the GP's motor-driven internal calibration mass is equivalent to a 50kg calibration mass in terms of top loading capacity on the weighing pan. The adjusted weighing accuracy is within  $\pm 15$  digits in relation to the weighing capacity while conforming to the OIML's Class II balances definitions after using GP's internal calibration mass.

## Standard WinCT

WinCT (Windows Communication Tools Software), provides easy transmission of weighing data from A&D balances to a computer using the RS-232C interface. Quickly exports data into Windows applications in a manageable format limited only by the computer's capabilities.

## RS-232C Interface

Using a USB/RS-232C Converter, you can transfer data between a USB equipped PC and a GP balance. This also makes your GP balance hot-swappable-no need to turn the balance and computer off before disconnecting the balance.



# t User-Friendly Indus



## GP-S

*with detached display unit*

GP-30KS — (31kg/0.1g)

GP-100KS — (101kg/1g)

## GP Series

*with Swing Arm display type*

- GP-12K (12kg/0.1g)
- GP-20K (21kg/0.1g)
- GP-32K (6.1kg/0.1g\* · 31kg/1g)
- GP-30K (31kg/0.1g)
- GP-40K (41kg/0.5g)
- GP-60K (61kg/1g)
- GP-100K (101kg/1g)
- GP-102K (61kg/1g\* · 101kg/10g)



Super Hybrid Sensor



Vacuum Fluorescent



Full Digital Calibration



Complies with GLP/GMP format



RS-232C Serial Interface



IP-65 resistant to water & dust



HI/OK/LO Comparator



Automatic Counting Accuracy Improvement



Windows Communication Tools Software



Display Auto Power OFF



Internal Calibration



Detachable Display Unit

### \* SmartRange

The GP-32K and GP-102K have the precision and standard ranges. The precision range has a higher resolution and the standard one is normal resolution. Pressing the RE-ZERO key allows weighing in the precision range, regardless to the tare value. (**SmartRange** function). **SmartRange** function enables you to weigh or add samples in the precision range without removing container and/or those objects that have been placed on the pan.

# Industrial Balances...

## Swing Arm Display

Compliant IP-65 **IP65**  
(resistant to dust, water and moisture)



## Clear & Large VFD Display

**888**  
VFD Display

Easy to see-even in the dark / Wide angle view prevents mistakes



### ANIMAL



**Animal Weighing Mode** allows you to quickly and accurately determine the weight of any live or unstable subject. Optional animal weighing pan (GP-12) is available.

### ACAI

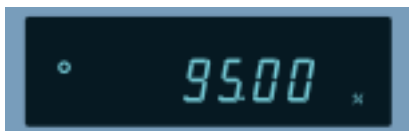


**Automatic Counting Accuracy Improvement (ACAI)** is a novel and useful approach to ensuring the utmost in performance when counting even the smallest of items. ACAI automatically updates and refines the average piece weight used to determine the total quantity.



**Automatic Adjustable Environment Setting** Adapts to the most suitable Environment Response Setting automatically with one-touch key operation. The response annunciator displays "FAST", "MID" and "SLOW."

**Manual Response Adjustment** can be set by pressing the MODE key and response speed can be adjusted to FAST, MID or SLOW.



**Percentage Function** facilitates an effective and quick comparison of a sample or commodity against a known reference mass. Simply place an object on the pan to register its weight as 100%. Place another object on the pan to compare its weight in percentage mode.

### COMPARATOR



**Standard Comparator Function** offers increased flexibility and compatibility for a vast number of applications. You can input a target weight and weigh heavier or lighter items using either the keyboard or by placing samples on the pan. Hi, OK or Lo will be indicated on the display to show the comparison results.



**Overall Capacity Indication** is a unique and helpful feature. By indicating how much of the balance's capacity has been filled, the risk of overloading the balance is minimized.

## **IP65** IP-65 Splash Proof Keyboard, Display and Base Units

Balances protected from dust and spills up to IP65 level

## **GLP** GLP/GMP/ISO Compliance

Allows GLP, GMP and ISO balance management by outputting the Balance ID number and data used to calibrate the balance. The data can be output to A&D's AD-8121B printer or a PC, indicating date, time, Balance ID number, serial number and calibration data.



## Standard RS-232C

Bi-directional communication with a PC or connect directly to a printer

## Commands

A PC can control the balance by sending commands to the balance.

- Command to query weighing data
- Command to control the balance
- Command to control the memory function
- Command to control the comparator function

## ID Number

The balance ID number can be set. It is used to identify the balance when GLP is used. The ID number is memorized and maintained once it is fixed, even if the AC adaptor is removed.

## Optional Underhook

Ideal for density determination and weighing magnetic substances

- GP-20 Underhook for GP-12K/20K/32K/30K/40K/30KS
- GP-21 Underhook for GP-60K/100K/102K/100KS

## Density Determination of a Solid Object

The GP has a density determination mode, which is available after changing the internal parameter settings. Once the object's weight in the air, in liquid and the liquid density are input, the solid density will be calculated. It is useful to determine concrete's density.

## Enlargement Indication of HI, OK, LO Symbols

With MODE key pressed during usual HI, OK or LO indication, the display is refreshed from  $3.0000\text{kg}^{\text{HI}}$  to  $\text{HI kg}$ . The letters (HI, for example), can be enlarged.

## Accumulation of Weighing Results

GP can accumulate the weighing results and display and output them.

## Data Memory

Format the data memory function for:

- 200 sets of weighing data
- 100 sets of weighing data with Time & Date
- 20 sets of Tare values
- 50 sets of GLP data-Time & Date, Calibration Data, ID Number and Serial number
- 50 sets of Unit Weight for Counting mode
- 20 sets of comparator Upper & Lower Limits

## Time & Date

Standard Time & Date Function complies with GLP and Interval Weighing in the Data Memory function.

## Auto Self Checking

Automatically checks itself when setting the Automatic Adjustment Environment.

## Interval Time Setting

Weighing intervals of 2, 5, 10, 30 seconds and 1, 2, 5, 10 minutes in the Data Memory Function.

## Auto Re-Zero

Re-Zeros automatically after data output

## Large Stainless Steel Weighing Pan

384mm x 344mm for GP-12K/20K/32K/30K/30KS/40K/60K  
386mm x 346mm for GP-100K/100KS/102K

## Multiple Weighing Units & Programmable Unit

Uses programmable or standard units of measure (g, kg, lb, OZ, ct, dwt, OZt, mom, TL, MS, tola and DS)

## Air Bubble Leveling

Easily check the balance for level installation

## SmartRange

For more accurate weighing, SmartRange function is provided on the GP32K (6.1kg x 0.1g/31kg x 1g) and GP-102K (61kg x 1g/101kg x 10g).

## Built-In Internal Calibration Mass

The GP has a built-in internal calibration mass. Internal calibration mass is equivalent to a 50kg calibration mass in terms of top loading capacity on the weighing pan.



## Display Auto Power OFF

Display turns off after 10 minutes of inactivity, which can be disabled when not needed.

## Auto Power ON

Plug it in and it turns ON without pressing the ON/OFF key.



## Specifications

		GP-12K	GP-20K	GP-32K	GP-30K GP-30KS	GP-40K	GP-60K	GP-100K GP-100KS	GP-102K
Models									
Weighing Capacity		12kg	21kg	31kg	31kg	41kg	61kg	101kg	101kg
Resolution		0.1g		1g/0.1g(Smart Range)	0.1g	0.5g	1g		10g/1g(Smart Range)
Repeatability (Standard Deviation)		0.1g		0.5g/0.1g	0.1g	0.5g	0.7g	1g	5g/1g
Linearity		±0.2g		±1g/±0.2g	±0.2g	±1g		±2g	±10g/±2g
Stabilization Time		1.5 seconds (TYP at FAST mode)							
Accuracy just calibrated by internal mass		±1.0g			±1.5g		±5g	±10g	
Sensitivity Drift (10°C-30°C/50°F-86°F)		±3ppm/°C		±5ppm/°C	±3ppm/°C	±5ppm/°C	±6ppm/°C		±10ppm/°C
Operating Temperature		5°C to 40°C (41°F to 104°F), 85% RH or less (No condensation)							
Sensing Method		Super Hybrid Sensor (SHS)							
Display Type		Vacuum Fluorescent Display (VFD)							
Display Refresh Rates		5 times/second or 10 times/second							
Weighing Units and Modes		g, kg, lb, L OZ, OZ, ct, dwt, OZt, mom, TL, MS, tola, DS and % and counting PCS [ Weighing units g, ct, and dwt are not available on GP-102K ]							
Counting Mode	Minimum unit mass	0.1g		1g	0.1g	0.5g	1g		10g
	Number of samples	10, 25, 50 or 100 pieces							
Percent Mode	Min. 100% reference mass	10g		100g	10g	50g	100g		1000g
	Min. 100% display	0.01%, 0.1%, 1% (automatically switches depending on the reference mass stored)							
Standard Interface		RS-232C Serial Interface with Windows Communication Tools (WinCT)							
Recommended External Calibrating Weight		5kg 10kg	10kg 20kg	20kg 30kg	20kg 30kg	20kg 30kg 40kg	30kg 40kg 50kg 60kg	60kg 80kg 100kg	
Water & Dustproof Level		Complies with IP-65 (International Protect), covers the entire apparatus							
Weighing Pan		Stainless steel weighing pan (Wash down type)				384mm x 344mm		386mm x 346mm	
Calibration		Motor-driven internal calibration mass with SHS							
External Dimensions		372(W)x615(D)x130(H)mm (Note: GP-30KS is 344(W)x442(D)x130(H)mm)						373(W)x615(D)x130(H)mm (Note: GP-100KS is 346(W)x443(D)x130(H)mm)	
AC Adaptor		Please confirm that the adaptor is correct for the local voltage and power receptacle.							
Power Consumption		Approximately 14VA (supplied by AC adaptor)							
Net Weight		Approximately 17kg						Approximately 18kg	

## Options

- GP-04: Comparator Output (Relay with Buzzer) / RS-232C / Current Loop
- GP-06: Analog/Current Loop Output
- GP-07: 5-meter connection cable(factory option)  
(For GP-30KS & GP-100KS)
- GP-12: Animal weighing pan
- GP-20: Underhook  
(For GP-12K/20K/32K/30K/30KS and GP-40K)
- GP-21: Underhook  
(For GP-60K/100K/100KS and GP-102K)
- GP-22: AD-8121B Printer Support

## Accessories

- AX-KO1710-200: RS-232C cable (25P-9P)
- AX-SW-128: Foot Switch

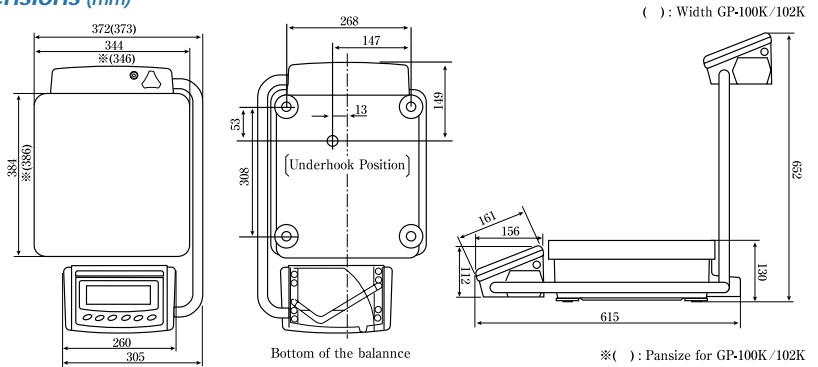
## Peripherals (sold separately)

- AD-1682: Rechargeable Battery Unit
- AD-8920: Remote Display
- AD-8121B: Dot Matrix Compact Printer
- AD-8118B: Universal Printer
- AD-8922: Remote Controller



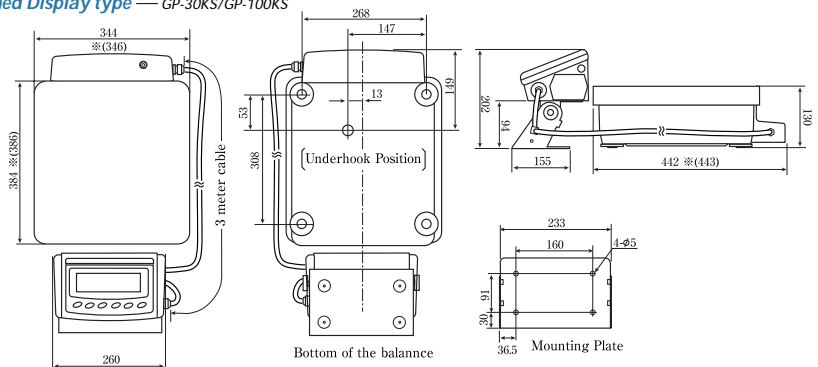
AD-1682: Rechargeable Battery Unit

## Dimensions (mm)



## Swing Arm-Display type

## Detached Display type — GP-30KS/GP-100KS



Dimensions with ※( ) are for the GP-100KS

Specifications subject to change for improvement without notice.

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